



**MARICOPA COUNTY
ENVIRONMENTAL SERVICES**

INSTRUCTIONS

FOR REPORTING 1999

ANNUAL AIR POLLUTION EMISSIONS

January 2000

Prepared by

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WHAT'S NEW FOR 1999?

- **The reporting of certain non-precursors of ozone** (such as acetone and certain other solvents, sometimes found in paints, stains, etc.) **is no longer required.** If you reported these emissions in previous years, they are not preprinted on your 1999 survey forms. You must continue to report all emissions of VOCs from all processes.
- **Some preprinted information is different from last year.** If you use your own computerized reproduction of our forms from a previous report, your information must conform to current information supplied on our 1999 preprinted forms.
- New emission factors have been provided by EPA for a number of processes reported on the General Process form.
- Many Control Device Codes reported on the Control Device Form have been revised to match current EPA codes.
- Some Calculation Method Codes listed on the General Process Form have been revised to match current EPA codes.

I. INTRODUCTION

An annual emissions inventory is a formal report submitted by a business that: (1) lists all processes emitting air pollutants and (2) provides details about each of those processes. Submitting the emissions inventory report is **required** as a condition of your Maricopa County Air Quality Permit. A separate emissions report is required for each business location determined by the air quality permit.

Follow these steps to complete your 1999 Maricopa County emissions inventory:

STEP 1: Determine which forms are needed for your business. There are eight different forms available, but not all are required for every type of business. Where applicable, this packet contains the necessary pre-printed forms based on your business's most recent emissions inventory.

1. **Business Form:** Contains general contact information about the firm. This form is required for all businesses.
2. **Stack Form:** Only required if your business location annually emits over 10 tons of any of these single pollutants (CO, VOC, NO_x, PM₁₀, or SO_x). A "stack" is defined as any vent designed to capture a significant percentage of emissions (from one or more processes) and release those emissions into the atmosphere. See the "Stack Form Instructions" on page 7 for specific requirements.
3. **Control Device Form:** Required only if there is one or more emission control devices used at the business location.
4. **General Process Form** and
5. **Evaporative Process Form:** Either or both will be required for all businesses.
6. **Off-Site Recycling/Disposal Form:** Required if you want to claim off-site recycling or disposal.
7. **Emission Factor Calculation Form:** Required for each process for which you calculated your own emission factors.
8. **Data Certification/Fee Calculation Form:** Required for all businesses.

STEP 2: Complete the applicable forms. Detailed information on how to complete the most common forms is included in this document. This packet also contains information about other resources (workshops, one-on-one assistance, etc.) available to help you in completing the necessary forms.

STEP 3: Make a copy of your completed emissions inventory report. Make sure to **KEEP COPIES** of all forms submitted and copies of all records and calculations used in completing the forms. Air pollution control regulations require that you keep all documentation for at least **FIVE YEARS** at the location where pollution is being emitted.

STEP 4: Make sure the Data Certification/Fee Calculation Form is **signed** by a company representative. Return the original, signed copy of your annual emission report, with payment for any applicable emissions fees, to:

Maricopa County Environmental Services Dept.
Emissions Inventory Unit
1001 North Central Avenue, Suite 201
Phoenix, AZ 85004-1942

II. REPORTING REQUIREMENTS

POLLUTANTS TO BE REPORTED:

Your emissions inventory must include your business's emissions of the following air pollutants:

PM₁₀ = Particulate matter <10 microns

NO_x = Nitrogen oxides

VOC = Volatile organic compounds

SO_x = Sulfur oxides

CO = Carbon monoxide

NH_x = Ammonia & ammonium compounds

Pb = Lead

HAP&NON = Hazardous Air Pollutant (HAP) which is also a NON-precursor of ozone

Volatile organic compounds (VOC) are defined as any compound of carbon which participates in atmospheric photochemical reactions. This definition **excludes**: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, as well as other organic compounds that have negligible photochemical reactivity.

HAP&NON: Usage of certain materials that are both a Hazardous Air Pollutant (HAP) and a non-precursor of ozone should also be reported. The most common materials in this category include:

- methylene chloride
- perchloroethylene
- 111 trichloroethane (111 TCA or methyl chloroform)
- hydrochloric and hydrofluoric acids

III. HELPFUL HINTS AND INFORMATION

Verify all preprinted information on forms. If any information is incorrect or blank, please provide correct information.

WHAT IS A PROCESS?

A **process** is an activity at your business location that emits CO, VOC, NO_x, PM₁₀, SO_x, NH_x (ammonia compounds) or HAP&NON (hazardous air pollutants which are non-precursors of ozone), and has only **one** material type as input and **one** operating schedule. For each applicable process at your business, you must assign a unique Process ID number to differentiate each process.

PROCESSES THAT DO NOT HAVE TO BE REPORTED:

- Welding.
- Sandblasting.
- Storage emissions from fuels or organic chemicals in any tank with a capacity less than 250 gals.
- Storage emissions of diesel and Jet A fuel in underground tanks of any size.
- Storage emissions of diesel and Jet A fuel in aboveground tanks, throughput less than 4,000,000 gal/yr.
- Internal combustion (engines) and external combustion (boilers, heaters) equipment that operated less than 100 hrs. and burned less than 200 gals. diesel or gas, or less than 100,000 cubic feet of natural gas.
- Routine pesticide usage, housekeeping cleaners, and routine maintenance painting at your facility.

MATERIALS THAT DO NOT HAVE TO BE REPORTED:

- Materials with usage of less than 15 gallons or 100 pounds per year. Please group all similar small-usage evaporative materials together before applying this limitation.

GROUPING MATERIALS AND/OR EQUIPMENT UNDER ONE PROCESS ID:

You can group together under one process ID:

- All internal combustion engines **less than 600 horsepower** if they burn the same fuel AND have similar operating schedules.
- All external combustion equipment (boilers, heaters) **less than 10,000,000 Btu** per hour if they burn the same fuel and have similar operating schedules.
- All similar evaporative materials with similar emission factors that have similar operating schedules and process descriptions. For example, group low-VOC red paint, green paint and white paint together as one material "Paint: Low-VOC." **NOTE:** Show on an Emission Factor Calculation Form how the grouped emission factor was determined. See page 17 for an example.
- All underground tanks with the same fuel and same type of vapor recovery system. **DO NOT** report diesel or Jet A underground tank emissions. **DO NOT** report aboveground diesel or Jet A tank emissions when throughput is less than 4,000,000 gallons annually.

INDUSTRY-SPECIFIC INSTRUCTIONS: Additional help sheets, detailed examples, and special instructions are available for a number of specific processes or industries listed below. To get copies of any of these documents, please visit our Web page at www.maricopa.gov/sbeap/ei.htm or call (602) 506-6790.

- | | | |
|--------------------------|-----------------------------------|-----------------------------------|
| • Woodworking | • Roofing Asphalt | • Natural Gas Boilers/Heaters |
| • Printing Plants | • Vehicle Travel on Unpaved Roads | • Polyester Resin |
| • Sand and Gravel Plants | • Fuel Storage and Handling | • Incinerators and Crematories |
| • Bakeries | • Using EPA's TANKS 3.1 Program | • Large Aboveground Storage Tanks |

COMMONLY USED CONVERSION FACTORS:

1 gram/liter	=	0.00834 lbs/gal	1 therm	=	0.0000952 MMCF
1 liter	=	0.2642 gallon US	1 square foot	=	0.000022957 acre
1 foot	=	0.0001894 mile	1 pound	=	0.0005 ton

NOTE: MM = 1,000,000 Example: MM CF = 1,000,000 cubic feet
 M = 1,000 Example: M GAL = 1,000 gallons

CONFIDENTIALITY OF DATA SUBMITTED:

Information submitted in your annual emissions reports must be made available to the public unless it meets certain criteria of Arizona State Statutes and Maricopa County Rules. Applicable excerpts concerning confidentiality of data are reproduced below.

ARS § 49-487 D. ...the following information shall be available to the public:...

2. The chemical constituents, concentrations and amounts of any emission of any air contaminant. ...

MARICOPA COUNTY AIR POLLUTION CONTROL RULES AND REGULATIONS, Rule 100:

294 TRADE SECRETS - Information to which all of the following apply:

- 294.1 A person has taken reasonable measure to protect from disclosure and the person intends to continue to take such measures.
- 294.2 The information is not, and has not been, reasonably obtainable without the person's consent by other persons, other than governmental bodies, by use of legitimate means, other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding.
- 294.3 No statute, including ARS §49-487, specifically requires disclosure of the information to the public.
- 294.4 The person has satisfactorily shown that disclosure of the information is likely to cause substantial harm to the business's competitive position.

402 CONFIDENTIALITY OF INFORMATION:

- 402.2 Any records, reports or information obtained from any person under these rules shall be available to the public ... unless a person:
 - a. Precisely identifies the information in the permit(s), records, or reports which is considered confidential.
 - b. Provides sufficient supporting information to allow the Control Officer to evaluate whether such information satisfies the requirements related to trade secrets as defined in Section 294 of this rule.

For emissions inventory information to be kept confidential, the following must be done:

- Specific data which you request be held confidential must be identified by marking an "X" in the corresponding gray confidentiality box(es) on the relevant report forms.
- Provide a written explanation which gives factual information satisfactorily describing why releasing this information could cause substantial harm to the business's competitive position.

No data can be held confidential without proper justification.

ADDITIONAL ASSISTANCE:

The Maricopa County Emissions Inventory Web page at www.maricopa.gov/sbeap/ei.htm contains additional reference materials such as:

- blank copies of most emissions reporting forms
- this document, "Instructions for Reporting 1999 Annual Air Pollution Emissions"
- an updated list of emission factors for a large number of industrial processes, including SCC codes
- a list of Tier Codes for industrial processes
- detailed help sheets for a number of specific industries or processes

For additional information or assistance in how to calculate and report your emissions, or for additional forms, please call us at (602) 506-6790.

IV. INSTRUCTIONS FOR COMPLETING COUNTY EMISSIONS INVENTORY FORMS

Business Form Instructions

Verify all preprinted information, and make corrections where necessary.

Data fields:

- 9 NAICS Code: This 6-digit North American Industrial Classification System (NAICS) code is being introduced to replace the 4-digit Standard Industrial Classification (SIC) codes. Please list the primary and secondary NAICS codes for your business, if known.
- 10 MACT Standards: Please indicate if your business is subject to a current Federal standard for Maximum Achievable Control Technology (a "MACT Standard"). The U.S. EPA currently has MACT standards in place for a number of industries, including the following industries or processes:
- Aerospace Manufacturing and Rework
 - Chromium Electroplating
 - Degreasing Organic Cleaners
 - Flexible Polyurethane Foam Manufacture
 - Stage I Gasoline Marketing
 - Wood Furniture

Please contact Jess Lotwala, Maricopa County MACT Program Coordinator, at (602) 506-6735 with any other questions regarding whether any current MACT standards are applicable to your business.

Stack Form Instructions

A “*stack*” is defined as any vent that is designed to capture a significant percentage of emissions and release those emissions into the atmosphere (with or without a control device).

IMPORTANT NOTE:

Stack information is required only if your business location annually emits over 10 tons of any one of the following pollutants: CO, VOC, NO_x, PM₁₀, or SO_x. If so, you must complete a Stack Form for:

- each stack connected to a control device. If one control device has more than one stack, please call (602) 506-6790 for directions on how to provide information on multiple stacks with one Stack ID.
- any stack that discharges annually more than 5 tons of combined pollutant emissions.

EXAMPLE Stack Form Information

1	2	3	4	5a	OR	5b	6a	OR	6b & 6c	7
Stack ID	Stack Type Code*	Stack Height**	Exit Gas Temperature	Velocity feet/sec		Flow Rate acfm	Diameter inside inch		Length & Width inside inch	Stack Name/Description (Optional)
1	W	30 ft	90 °F			20,000	36			paint booth #1
2	W	14 ft	1340 °F			1,186	12			engine exhaust

* Stack Type Codes: **V** = Vertical unobstructed **H** = Horizontal unobstructed
 D = Downward unobstructed **W** = Obstructed vertical (e.g. weather cap)

** Stack height is calculated relative to the surrounding terrain. For instance, the stack height of a 10-foot stack on top of a 20-foot tall building is 30 feet.

1 Stack ID: A number (up to three digits) which identifies a specific stack. It is suggested you start with 1, then 2, etc.

5a Exit Gas Velocity: **OR** 5b Gas Flow Rate:

Provide **EITHER** the exit velocity (in feet per second) **OR** the flow rate of gas (in actual cubic feet per minute) exiting the stack during normal operations.

6a Inside Stack Diameter: For circular stacks, provide Inside Stack **Diameter** in inches.

OR

6b & 6c Inside Stack Length and Width: For rectangular stacks provide inside **Length** and inside **Width** in inches.

Control Device Form Instructions

EXAMPLE Control Device Form Information

1	2	3	4	5	6
Control ID	Installation/ Reconstruction* Date	Size or Rated Capacity	Control Type Code	Control Device Name/Description	Stack ID
2	01/15/93	4,632 cfm	020	Catalytic converter	2

- 1 **Control ID:** A unique number (up to three digits) that you assign to identify a specific control device.
- 2 **Installation/Reconstruction Date:** The completion date (given in *mm/dd/yy* format) of installation or the most recent reconstruction of the identified control device. This is not a date on which routine repair or maintenance was done. Reconstruction means any component of the control device was replaced and the cost (fixed capital) of the new component(s) was more than half of what it would have cost to purchase or construct a new control device.
- 4 **Control Type Code:** Common examples are listed below. **Note that these codes have been revised** slightly from those used in previous years, in order to match current EPA codes. For a complete list of all possible control device codes, please consult our Web page at www.maricopa.gov/sbeap/ei.htm or call (602) 506-6790.

<u>CODE</u>	<u>DESCRIPTION</u>
-------------	--------------------

002	wet scrubber, high efficiency
003	wet scrubber, medium efficiency
004	wet scrubber, low efficiency
014	gas scrubber, general
017	fabric filter, high temperature, T > 250°F (baghouse)
018	fabric filter, medium temperature, 180°F < T < 250°F (baghouse)
019	fabric filter, low temperature, T < 180°F (baghouse)
020	catalytic afterburner (catalytic oxidizer)
021	catalytic afterburner (catalytic oxidizer) with heat exchanger
022	direct flame afterburner (thermal oxidizer)
023	direct flame afterburner (thermal oxidizer) with heat exchanger
049	activated carbon adsorption
054	venturi scrubber
056	impingement plate scrubber
058	dynamic separator (wet)
059	mat or panel filter
062	dust suppression by water sprays
063	dust suppression by chemical stabilization/wetting agents
076	single cyclone
077	multiple cyclone without fly ash reinjection
097	vapor lock balance recovery system
100	miscellaneous control devices (e.g., sock)
200	municipal waste water treatment (or disposal to municipal waste water system)
999	control inherent in process

- 6 **Stack ID:** The three-digit ID number which identifies a specific stack that this control device vents to. The Stack ID can be entered on this form after the Stack Form has been filled out.

General Process Form Instructions

The General Process Form is used to record data on all emissions-producing processes except evaporative processes. A **general** process is normally characterized by the burning or handling of the material. For example, several pollutants are produced by burning a fuel, and PM₁₀ is emitted by handling rock products or driving on unpaved areas.

Data fields:

- 1 Process ID: A number (up to three digits) that you assign to represent this specific process. This Process ID number can NOT be used to represent any other process at this business location.
- 3 Stack ID(s): The stack identification number(s) for the stack(s) that vents pollution created by this process. See your Stack Form for a list of Stack IDs. Include stack numbers only for stacks required to be listed on the Stack Form. See the Stack Form instructions for stack reporting requirements.
- 4 Process Tier Code and If these codes are not preprinted on your form, please consult our
5 SCC Code: Web page at www.maricopa.gov/sbeap/ei.htm or call (602) 506-6790.
- 6 Seasonal Throughput Percent: Enter the percent of total annual operating time that occurred per season, rounded to the nearest percent. For example, "Dec-Feb 30%" means 30% of total annual process activity occurred between December and February. The total for all four seasons must equal 100%.
- 9 Emissions Based on: Provide the NAME of the material used, fuel used, product produced, or write in "hours of operation," "vehicle miles traveled," "acres," or similar measurement.
- 10 Used or Produced: Indicate whether calculated emissions are based on a material type *used*, a fuel *used* or a product *produced*. *Leave this field blank* if "hours of operation," "vehicle miles traveled," "acres," or similar unit of measurement is used.
- 11 Annual Amount: The annual amount of material that was used, fuel combusted, product produced, hours of operation, vehicle miles traveled, or acres.
- 12 Unit of Measure: Units of the material used, fuel used or product produced shown on line 9. For example: gallons, tons, therms, acres, vehicle miles traveled, pounds, units produced.
- 13 Unit Conversion Factor: If you use an emission factor with an emission factor unit (see item 16 below) that is **not** the same as the unit of measure (from line 12), you need to provide a unit conversion factor. See the example General Process Form on page 11.
- 14 Pollutant: See page 3 for a list of pollutants that need to be reported.
- 15 Emission Factor (EF): The number to be multiplied by the annual amount (line 11) to determine how much of the pollutant was emitted. If you calculate your own emission factor or change the preprinted emission factor, you must provide details of your calculations on an Emission Factor Calculation Form.

General Process Form Instructions (continued)

- 16 Emission Factor (EF) Units: Enter the appropriate Emission Factor Units in pounds (lb) per unit; e.g., lb/ton, lb/MMCF, lb/gal.
- 17 Controlled Emission Factor (EF): YES or NO. Indicate “YES” if: 1) you have your own emission factor from testing **and** included the control device efficiency within the factor, or 2) the emission factor used is clearly identified as a controlled emission factor. A “YES” response requires the use of Formula A (see #24 below). Indicate “NO” if: 1) there is no emission control device, or 2) the EF represents emission rates **before** controls. A “NO” response requires the use of Formula B (see #24 below).
- 18 Calculation Method: Enter the number code (listed at the bottom of the General Process form) which best describes the method you used to obtain this emission factor. **Note that the definitions and numbering of these codes has been revised** from previous years, in order to match current EPA codes.
- 19 through 23: Leave blank if there is no control device.
- 19 Capture % Efficiency: The percent of the pollutant that is captured and sent to the primary control device in this process. Be sure to list a capture efficiency separately for **each** pollutant.
- 20 Primary Control Device ID: If this pollutant is being controlled in this process, enter the Control Device ID number which represents the first control device the pollutant goes to; otherwise leave this blank.
- 21 Secondary Control Device ID: If this pollutant is being controlled sequentially by 2 devices, enter the Control Device ID number which represents the second control device; otherwise leave this field blank.
- 22 Control Device(s) % Efficiency: Enter the total control efficiency of the control device(s). Be sure to list a control device efficiency separately for **each** pollutant. If you report a control device efficiency, you must **also** show a capture efficiency in column 19.
- 23 Control Efficiency Reference Code: Enter the number code, from the list at the bottom of the form, that best describes how you determined the control efficiency.
- 24 Estimated Actual Emissions (in pounds/year): Calculate as follows:
- A. Emissions with no controls or controls are reflected in the emission factor:
Column 24 = line 11 × line 13 × column 15
- B. Emissions after control:
Column 24 = line 11 × line 13 × column 15 × (1 – [column 19 × column 22])
- Use the decimal equivalent for columns 19 and 22. Example: 96.123% = 0.96123

EXAMPLE: Internal Combustion

General Process Form 1999

Permit number(s) 9009009

1- Process ID 8

☐ 2- Process Type/Description: Engine for crusher (less than 600 HP)

3- Stack ID(s) (only if required on Stack Form) _____

4- Process TIER Code: 020599

5- SCC Code 20200102 (8 digit number)

6- Seasonal Throughput Percent: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

7- Normal Operating Schedule: Hours/Day 8 Days/Week 5 Hours/Year 2080

8- Typical Hours of Operation (military time) Start 0800 End 1700

☐ 9- Emissions based on (example: rock, diesel, incinerated waste) diesel

10- ☒ Used (input) or ☐ Produced (output)

☐ 11- Annual Amount (a number) 16,250

12- Unit of Measure (for example: tons, gallons, 1000 cu ft, acres, units produced, etc.) gallons

13- Unit Conversion Factor (if needed to convert Unit of Measure to correlate with emission factor units) 0.001

Emission Factor (EF) Information					Control Device Information					
14	15	16	17	18	19	20	21	22	23	24
Pollutant	Emission Factor (EF) (number)	EF Units	Controlled EF? Yes or No	Calculation Method Code*	Capture % Efficiency	Primary Control Device ID	Secondary Control Device ID	Control Device(s) % Efficiency	Efficiency Reference Code**	Estimated Actual Emissions
CO	130	lb/1000 gal	N	5						2113 lbs
NOx	604	"	N	5	100.00 %	1		99.4 %	1	59 lbs
PM10	42.5	"	N	5						691 lbs
SOx	39.7	"	N	5						645 lbs
VOC	49.3	"	N	5						801 lbs

* Calculation Method Codes:

- 1 = Continuous Emissions Monitoring Measurements
- 2 = Best Guess / Engineering Judgment
- 3 = Material Balance
- 4 = Source Test Measurements (Stack Test)
- 5 = U.S. EPA's AP-42 / FIRE Method or Emission Factor
- 6 = State or Local Agency Emission Factor
- 7 = Manufacturer Specifications

** Control Efficiency Reference Codes

- 1 = Tested efficiency / EPA reference method
- 2 = Tested efficiency / other source test method
- 3 = Design value from manufacturer
- 4 = Best guess / engineering estimate
- 5 = Calculated based on material balance
- 6 = Estimated, based on a published value

Evaporative Process Form Instructions

The Evaporative Process Form records data on all emissions produced by evaporative processes.

Examples include: cleaning with solvents, painting and other coatings, printing, using resin, evaporation of fuels from storage tanks, ammonia use, etc. All other processes should be shown on the General Process Form.

Use a separate Evaporative Process Form for each group of materials that has a different Process Type/Description (listed on line 1), different Tier Code (on line 2) or different operating schedule (lines 3, 4, or 5). Also report VOC material storage emissions in tanks with capacity of 250 gallons or more on separate Evaporative Process Forms. See the “Emissions Inventory Help Sheet for Fuel Storage and Handling” for additional instructions.

Data fields: (See sample forms on pages 14 and 15)

- 1 Process Type/Description: Description of the activity in which the listed materials were used.
- 2 Process Tier Code: If this 6-digit code is not preprinted on your form, please refer to the Tier Code list at www.maricopa.gov/sbeap/ei.htm or call (602) 506-6790.
- 3 Seasonal Throughput Percent: Enter the percent of total annual operating time that occurred per season (rounded to the nearest percent). For example: "Dec-Feb 30% " means 30% of total annual process activity occurred between December and February. The total for all four seasons must equal 100%.
- 6 Storage Tank Location: Only for storage tanks larger than 250 gallons. Do NOT include diesel tanks with less than 4,000,000 gallons throughput per year. “Vaulted” means the tank is completely enclosed in a building or by thermal insulation. Select only one.
- 7 Process ID: A number (up to three digits) that you assign to represent this specific process. A process can only have one material and must have the same operating schedule as that given above. This Process ID number can NOT be used to represent any other process at this business location.
- 8 Stack ID(s): The stack identification number(s) for the stack(s) that vents pollution created by this process. See your Stack Form for a list of Stack IDs. Include stack numbers only for stacks required to be listed on the Stack Form. See the Stack Form Instructions for stack reporting requirements.
- 9 Material Type: Provide the name of the material used in this process. The name of the material should reflect its use (paint, ink, etc.), rather than just a brand name or code number. Examples of materials include: paint, thinner, degreasing solvent (give name), ink, fountain solution, ammonia, alcohol, ETO (ethylene oxide), gasoline (in a storage tank).
- 10 Annual Material Usage/Input: Amount of material introduced into this process during the inventory year. Write in “lbs” or “gal” to describe the material units of pounds or gallons.
- 11 Pollutant: Write in VOC , HAP&NON or NH_x to identify the pollutant category:
VOC = volatile organic compound
HAP&NON = Hazardous Air Pollutant which is also a non-precursor of ozone
NH_x = Ammonia or ammonium compound

Evaporative Process Form (continued)

- 11 Pollutant (continued): When one process (or material) has more than one pollutant, list each pollutant on a separate line, using the same process ID number. Refer to the example (Process ID #7) on the Evaporative Process Form on page 15.
- 12 Emission Factor (EF): An emission factor is a number used to calculate the pounds of pollutant emitted based on the quantity of material used in a process. Emission factors can be obtained from your supplier (usually provided on a Material Safety Data Sheet or environmental data sheet), and must correspond with the material units reported in column 10. If the material unit is “gal,” then the emission factor must be in pounds of pollutant per gallon. If the material unit is “lb,” then the emission factor must be in pounds of pollutant per pound of material. A “lb/gal” emission factor is usually less than 8 and never greater than 14.
- 13 Pounds of pollutant sent off-site for recycling/disposal: Required only if this process contributes to the waste sent off site for recycling or disposal and you wish to take credit. The Off-Site Recycling/Disposal Form must be completed if you take credit.

14 and 15: Leave these fields blank if there is no control device present.

14 Capture % Efficiency: The percent of the pollutant from this process which is captured and sent to the control device.

15 Control Device ID: If this pollutant is being controlled in this process, enter the Control Device ID number from column 1 of the Control Device Form.

Control % Efficiency: Enter the percent of this pollutant which is controlled by this control device.

Control Efficiency Reference Code: Select the appropriate code from those listed at the bottom of the form.

- 16 Estimated Emissions (in pounds per year): Estimated pounds of the pollutant annually emitted after off-site recycling/disposal and controls if applicable. Round to the nearest pound. **NOTE**: Credit will not be given for off-site recycling/disposal unless it is shown on the Off-Site Recycling/ Disposal Form. Column 16 should be calculated as follows:

Emissions without off-site recycling/disposal or controls:

Column 16 = column 10 × column 12

Emissions with off-site recycling/disposal:

Column 16 = (column 10 × column 12) – column 13

Emissions with off-site recycling/disposal and controls:

Column 16 = [(column 10 × column 12) – column 13] × (1 – [column 14 × column 15])

Use the decimal equivalent for columns 14 and 15. Example: 96.123% = 0.96123

EXAMPLE: Coating and Painting

Evaporative Process Form 1999

Permit number(s) 9009009

☐ 1- Process Type/Description: Coating metal widgets

2- Process TIER Code: 080415 SOLVENT USE: SURFACE COATING - MISC METAL PARTS

3- Seasonal Throughput Percent: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

4- Normal Operating Schedule: Hours/Day 8 Days/Week 5 Hours/Year 2080

5- Typical Hours of Operation (military time) Start 0800 End 1700 ["military time" for 8:00 a.m. to 5:00 p.m.]

6- For STORAGE TANKS only. Select only one: ☐ Above Ground Vaulted ☐ Under Ground ☐ Above Ground NON-Vaulted

NOTE: Place an X in any gray cell to mark data requested to be held confidential. See Instructions for requirements for information to be deemed confidential.

7	8	9		10		11	12		13	14	15			16	
Process ID	Stack ID(s)	Material Type		Annual Usage Input		lb or gal	VOC, HAP&NON or NHx*	Emission Factor	EF Units (lbs per)	Pounds of pollutant* sent off site	Capture % Efficiency	Control ID	Control % Efficiency	Code**	Estimated Emissions (lbs per year)
800		lacquer		95		gal	VOC	4.7		lb/gal	%		%		447
801		lacq thinner		120		gal	VOC	7.1		lb/gal	%		%		852
802		paint		9,400		gal	VOC	4.2		lb/gal	87 %	01	99 %	1	5476
803		pnt thinner		7,070		gal	VOC	7.0		lb/gal	87 %	01	99 %	1	6864
804		powder paint		20,200		lb	VOC	.001		lb/lb	%		%		20
											%		%		

NOTE: Emissions in col. 16 are calculated as follows: $([col. 10 \times col. 12] - col. 13) \times (1 - [col. 14 \times col. 15])$
 Example: Process ID 802 is calculated: $([9400 \times 4.2] - 0) \times (1 - [.87 \times .99]) = 5475.876 = \underline{5476 \text{ lbs. (rounded)}}$
 If columns 14 and 15 are filled in, a Control Device Form must also be submitted.

**** Control Efficiency Reference Codes**

1 = Tested efficiency / EPA reference method

4 = Best guess / engineering estimate

2 = Tested efficiency / other source test method

5 = Calculated based on material balance

3 = Design value from manufacturer

6 = Estimated, based on a published value.

EXAMPLE: Cleaning solvent (WITH recycling)

Evaporative Process Form 1999

Permit number(s) 9009009

☐ 1- Process Type/Description: cleaning metal parts

2- Process TIER Code: 080103 **SOLVENT USE: DEGREASING - COLD CLEANING**

3- Seasonal Throughput Percent: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

4- Normal Operating Schedule: Hours/Day 8 Days/Week 5 Hours/Year 2080

5- Typical Hours of Operation (military time) Start 0800 End 1700

6- For STORAGE TANKS only. Select only one: ☐ Above Ground Vaulted ☐ Under Ground ☐ Above Ground NON-Vaulted

NOTE: Place an X in any gray cell to mark data requested to be held confidential. See Instructions for requirements for information to be deemed confidential.

7	8	9	10		11	12		13	14	15			16
Process ID	Stack ID(s)	Material Type	Annual Usage Input	lb or gal	VOC, HAP&NON or NHx*	Emission Factor	EF Units (lbs per)	Pounds of pollutant* sent off site	Capture % Efficiency	Control ID	Control % Efficiency	Code	Estimated Emissions (lbs per year)
6		gun cleaner	180	gal	VOC	7.2	1b/gal	749	%		%		547
7		xyz stripper	110	gal	VOC	3.3	1b/gal		%		%		363
7		xyz stripper	110	gal	HAP&NON	5.5	1b/gal		%		%		605
8		cleaning solvent	358.25	gal	VOC	3.3	1b/gal		%		%		1,182
									%		%		
									%		%		

* Pollutant = VOC, HAP&NON or NHx identified in column 11. If you have any off-site recycling or disposal of any of the materials listed above, you must complete an Off-Site Recycling/Disposal Form to receive credit for reduced emissions.

NOTE: This example shows the case where 130 of the original 180 gallons of material #6 were captured for off-site recycling, and the pollutant content of the waste material was estimated to be 80% of the original. The pounds of pollutant sent off-site shown in column 13 is calculated on the following Off-Site Recycling/Disposal form.

EXAMPLE: Off-Site Recycling/Disposal Form

Off-Site Recycling/Disposal Form 1999

Permit number(s) 9009009

Make additional copies of this page as needed.

Provide one off-site recycling/disposal form for each waste stream at your business location. A waste stream is the liquid waste from one or more processes mixed together to make one liquid waste product before it is taken off site for recycling, disposal or combustion.

- 1) Assign a unique two-digit ID number to identify the waste stream that will be described below. 01
(Start with ID# 01 for first waste stream. Make a copy of this blank form and use 02 for second, etc.)
- 2) How many gallons of liquid waste did this waste stream produce in 1999? 130 gallons.
Keep waste disposal company manifests as proof that this amount of liquid waste was taken off-site.
- 3) What was the **average** pollutant content of the liquid waste stream? Keep waste disposal company or lab records as proof.

VOC 5.76 lbs/gal HAP&NON _____ lbs/gal NHx _____ lbs/gal

NOTE: Liquid waste normally has less pollutant content than the clean product. Some of the pollutant evaporates during the use of the clean product, and there is usually dirt, water and/or other contaminants in the liquid waste. The estimated pollutant content of the liquid waste is usually between 50% and 95% of the clean product. This example estimates an average VOC content (reported on line 3) to be 80% of the original VOC content of 7.2 lbs/gal., to account for evaporation and contaminants.

- 4) Calculate the **total** annual pollutant content of the liquid waste in this waste stream.
(volume of liquid waste, from Line 2) × (pollutant content, from Line 3) = Total pollutants in waste stream, in lbs/yr.

VOC 749 lbs/yr HAP&NON _____ lbs/yr NHx _____ lbs/yr

- 5) List the process ID numbers of the processes contributing to this waste stream. Also estimate the pounds of pollutant that each process contributed to this waste stream.

NOTE: Column totals in the table below must equal the total for each pollutant type reported on Line 4. The quantities you report below for each pollutant and process must also be reported in Column 13 on the Evaporative Process Form.

Process ID	Annual VOC (lbs)	Annual HAP&NON (lbs)	Annual NHx (lbs)
6 Contributed about	749 lbs	lbs	lbs
Contributed about	lbs	lbs	lbs
Contributed about	lbs	lbs	lbs
Contributed about	lbs	lbs	lbs
Contributed about	lbs	lbs	lbs
Contributed about	lbs	lbs	lbs
Contributed about	lbs	lbs	lbs

EXAMPLE: Emission Factor Calculation Form

Identify the pollutant(s) and show calculations made to obtain the emission factors used in the process(es) identified below. Include references to data sources used, if documents other than EPA's AP-42 or Maricopa County Help Sheets, including the document name, date published, page numbers, etc.

Process ID 201

Permit number 9009009

Emission factors derived from source test performed 6/12/97 by XYZ Engineering Company (summary tables attached):

Outlet (after controls):

*CO = 0.43 lb/hr ´ 1 hr/60 min ´ 1 min/77.9 cu. ft ´ 1,000,000 cu. ft/MMCF
= 92.0 lb/MMCF*

*NOx = 0.09 lb/hr ´ 1 hr/60 min ´ 1 min/77.9 cu. ft ´ 1,000,000 cu. ft/MMCF
= 19.3 lb/MMCF*

NOTE: The example below shows how to combine materials with similar usage. A weighted average emission factor has been calculated by listing usage amounts and emission factors for each material, summing each column, and then dividing the total emissions by the total gallons used.

In this example: 1182.34 lbs , 358.25 gal = 3.30 lb/gal average VOC content. This emission factor is then reported in col. 12 of the Evaporative Process Form.

Process ID 8

Material Type	1999 Usage	Units	VOC (lbs/unit)	VOC Emissions (= Usage ´ VOC content)
Solvent A	18.0	gal	4.70	84.60
Solvent B	158.25	gal	2.25	356.06
Solvent C	28.0	gal	2.60	72.80
Solvent D	2.0	gal	1.50	3.00
Solvent E	118.0	gal	4.46	526.28
Solvent F	10.0	gal	5.50	55.00
Solvent G	21.0	gal	3.50	73.50
Solvent H	3.0	gal	3.70	11.10
Totals:	358.25		3.30	1,182.34

EXAMPLE: Data Certification/Fee Calculation Form

For EACH pollutant listed, total up all emissions recorded on your General Process and Evaporative Process Forms. Enter these numbers in column 1, "Totals from Process Forms". Report any emissions from accidental releases in 1999 in column 2. Add the figures in each row across, and enter the result in column 3, "Total 1999 Emissions." Carefully follow the instructions on lines 6 through 8 to calculate any emission fee owed.

NOTE: "Accidental Releases" reported in column 2 should include all excess emissions reported to the Department under Rule 100, Section 502.

Summary of 1999 Annual Emissions:	(1) Totals from Process Forms	(2) + Accidental Releases	(3) = TOTAL 1999 Emissions
CO	14,844		14,844
NH _x			
Lead			

Emissions fees are based on your emissions of the following pollutants ONLY:

Emissions fees are based on your emissions of the following pollutants ONLY:									
1	PM ₁₀	8,652	315	8,967					
2	SO _x	4,322		4,322					
3	NO _x	16,697		16,697					
4	VOC	12,645		12,645					
5	HAP&NON	242		242					
6	Add "TOTAL" column from lines 1 through 5 ONLY:			42,873 lbs.					
7	If line 6 is less than 10,000 pounds, enter zero (0) on line 8. If line 6 is 10,000 pounds or more, divide line 6 by 2000 (pounds per ton) to get tons, and round this number to the nearest ton. (Drop any decimal .499 or less. Increase to the next whole number any decimal of .500 or more.) Enter the resulting WHOLE NUMBER here:			<div></div> <div></div> <div>2</div> <div>1</div> <div>TONS</div>					
8	Multiply line 7 (a WHOLE number) by \$ 35.76 . This is your 1999 ANNUAL EMISSIONS FEE . NOTE: If your total annual emissions are less than 10,000 lbs., NO EMISSIONS FEE is due.			\$ 750.96					

NOTE: Review the specific requirements for data confidentiality on page 5. If the required documentation does not accompany your completed survey, we cannot hold any data confidential.

CONFIDENTIALITY STATEMENT:

This annual emissions report contains requests to keep some data confidential.

☐ YES ☒ NO

If you check "YES", you must submit documentation and meet certain requirements before your data can be deemed confidential. See enclosed instructions for further details.

NOTE: The Data Certification form must be signed by a responsible company official.

CERTIFICATION STATEMENT:

I declare under penalty of perjury that the data (e.g. inputs, emission factors, controls, and annual emissions) presented herein represents the best available information and is true, accurate and complete to the best of my knowledge.

Signature of owner/business officer

Date of signature

Telephone number

Type or print full name of owner/business officer

Type or print full title